FOR CAR USE ONLY/NUR FÜR AUTOMOBIL GEBRAUCH/POUR APPLICATION AUTOMOBILE UNIQUEMENT/PARA USO EN AUTOMÓVILES/SOLO PER L'UTILIZZO IN AUTOMOBILE/ENDAST FÖR BILBRUK/汽車專用/汽车专用

ALPINE®

REAR VIEW CAMERA SYSTEM

HCE-C300R

EN DE FR ES IT SE CT CS

- OWNER'S MANUAL
  Please read before using this equipment.
- BEDIENUNGSANLEITUNG
  Lesen Sie diese Bedienungsanleitung bitte vor Gebrauch des Gerätes.
- MODE D'EMPLOI
  Veuillez lire avant d'utiliser cet appareil.
- MANUAL DE OPERACIÓN
  Léalo antes de utilizar este equipo.
- ISTRUZIONI PER L'USO
  Si prega di leggere prima di utilizzare l'attrezzatura.
- ANVÄNDARHANDLEDNING
  Innan du använder utrustningen bör du läsa igenom denna användarhandledning.
- 用戶手冊
  請在使用本設備之前先閱讀用戶手冊。
- 用户说明书
  使用设备前请阅读本说明书。

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Operating Instructions

WARNING

⚠ DANGER

This symbol means important instructions. What to do in the case of an extremely critical situation wherein someone may suffer grave or mortal injury.

DO NOT PROCEED TO BACK UP YOUR VEHICLE WHILE PEOPLE ARE IN YOUR VIEW OR THE CAMERA'S VIEW. SERIOUS INJURY OR DEATH CAN RESULT.

⚠ WARNING

This symbol means important instructions. Failure to heed them can result in serious injury or death.

WHEN USING A CAMERA SYSTEM, THE DRIVER MUST VISUALLY CHECK ACTUAL CONDITIONS AROUND THE VEHICLE. MAKE SURE THERE ARE NO PERSONS OR ANIMALS IN THE AREA IN WHICH YOU ARE MANEUVERING OTHERWISE YOU COULD INJURE THEM.

A camera assists the driver by sending images to the screen showing conditions in view of the camera. The camera uses a wide-angle lens, therefore, there is a difference in distance perspective between what is normally seen and what appears on the screen. Also, the images shown by the rearview camera are reversed, so as to appear the same as what is seen through the rearview mirror.

The camera may not perform to full capability due to variables such as:

- weather conditions such as hard rain, snow, fog or mud
- extremely high or low temperatures near camera
- slope of vehicle and/or roadway
- direct exposure to very bright light such as headlamp or bright sunlight
- moving from very dark to very bright light and vice versa such as in parking garages or tunnels
- extremely low light areas
- walls or objects that are located diagonally in relation to the camera
- retracted mirrors that change camera viewing angle
- open doors or trunks
- changes to height of vehicle due to loading capacity or hydraulic suspensions
- objects located at the corner of the vehicle

WHEN USING AN OBJECT SENSOR SYSTEM, THE DRIVER MUST VISUALLY CHECK ACTUAL CONDITIONS AROUND THE VEHICLE. MAKE SURE THERE ARE NO PERSONS OR ANIMALS IN THE AREA IN WHICH YOU ARE MANEUVERING OTHERWISE YOU COULD INJURE THEM.

The Object detection function assists the driver in checking behind and around the vehicle but is not a substitute for using your own eyes. The system may not perform to full capability due to variables such as:

- weather conditions such as hard rain, snow, fog or mud
- dense exhaust fumes obscuring the sensor
- extremely high or low temperatures near sensor
- slope of vehicle and/or roadway
- direct exposure to very bright light such as headlamp or bright sunlight
- moving from very dark to very bright light and vice versa such as in parking garages or tunnels
- walls or objects that are located diagonally in relation to the sensor
- open doors or trunks
- changes to height of vehicle due to load capacity or hydraulics
- speed of vehicle and/or approaching object
- objects moving perpendicular to vehicle at same speed as vehicle
- walls or objects that are located diagonally in relation to the sensor
- large groups of moving objects, such as pedestrians in crosswalk
- when an object and vehicle are not moving
- when an object approaches the vehicle from an angle greater than 5 degrees
- objects more than 12 feet or 3.7 meters behind vehicle
- objects hidden by vehicle
- narrow objects such as a cone or pole
- objects located above the area that the sensor can scan
- non-moving small objects that are low to the ground
- approaching a flat wall, such as parking structure or guardrail
- other vehicles traveling at speed in excess of 24 mph or 40 km
- own vehicle traveling over 3 mph or 5 km

CHECK THAT THE CAMERA AND/OR SENSOR MOUNTING IS ATTACHED SECURELY, AND THAT THE SCREWS ARE TIGHT BEFORE DRIVING.

Failure to do so may result in an accident.

WHEN INSTALLING OR CHECKING A CAMERA AND/OR OBJECT SENSOR, DO SO AFTER PARKING THE CAR IN A LEVEL, SAFE PLACE, TURNING OFF THE ENGINE, AND APPLYING THE HAND BRAKE.

Failure to do so may result in an accident.

WHEN INSTALLING CAMERA AND/OR OBJECT SENSOR, BE SURE TO USE SPECIFIC VEHICLE CALIBRATION KIT OTHERWISE IT WILL NOT ACCURATELY DISPLAY IMAGES.

Failure to do so may result in an accident.

MINIMIZE DISPLAY VIEWING WHILE DRIVING.

Viewing the display may distract the driver from looking ahead of the vehicle and cause an accident.

DO NOT DISASSEMBLE OR ALTER.

Doing so may result in an accident, fire or electric shock.

KEEP SMALL OBJECTS SUCH AS BOLTS OR SCREWS OUT OF THE REACH OF CHILDREN.

Swallowing them may result in serious injury. If swallowed, consult a physician immediately.

USE THE CORRECT AMPERE RATING WHEN REPLACING FUSES.

Failure to do so may result in fire or electric shock.

MAKE THE CORRECT CONNECTIONS.

When making connections to the vehicle's electrical system, be aware of the factory installed components (e.g. on-board computer). Do not tap into these leads to provide power for this unit. When connecting the device to the fuse box, make sure the fuse for the intended circuit of the device has the appropriate amperage. Failure to do so may result in fire or damage to the unit and/or the vehicle. When in doubt, consult your Alpine dealer.

BEFORE WIRING, DISCONNECT THE CABLE FROM THE NEGATIVE BATTERY TERMINAL.

Failure to do so may result in electric shock or injury due to electrical shorts.

DO NOT ROUTE ELECTRICAL CABLES NEAR HOT OR MOVING PARTS.

Route the cables and wiring away from hot or moving parts, and fix them securely to avoid heat/mechanical damage to the cable insulation, which may result in a short circuit, fire or electric shock.

DO NOT SPLICE INTO ELECTRICAL CABLES.

Never cut away cable insulation to supply power to other equipment. Doing so will exceed the current carrying capacity of the wire and result in fire or electric shock.

DO NOT INSTALL IN LOCATIONS WHICH MIGHT HINDER VEHICLE OPERATION, SUCH AS THE STEERING WHEEL OR SHIFT LEVER.

Doing so may obstruct forward vision or hamper movement etc. and results in serious accident.

DO NOT DAMAGE PIPE OR WIRING WHEN DRILLING HOLES.

When drilling holes in the chassis for installation, take precautions so as not to contact, damage or obstruct pipes, fuel lines, tanks or electrical wiring. Failure to take such precautions may result in fire.

DO NOT USE BOLTS OR NUTS IN THE BRAKE OR STEERING SYSTEMS TO MAKE GROUND CONNECTIONS.

Bolts or nuts used for the brake or steering systems (or any other safety-related system), or tanks should NEVER be used for installations or ground connections. Using such parts could disable control of the vehicle and cause fire etc.

DO NOT ALLOW CABLES TO BECOME ENTANGLED IN SURROUNDING OBJECTS.

Arrange wiring and cables in compliance with the manual to prevent obstructions when driving. Cables or wiring that obstruct or hang up on places such as the steering wheel, shift lever, brake pedals, etc. can be extremely hazardous.

USE THIS PRODUCT FOR MOBILE 12V APPLICATIONS.

Use for other than its designed application may result in fire, electric shock or other injury.

USE ONLY IN CARS WITH A 12 VOLT NEGATIVE GROUND.

(Check with your dealer if you are not sure.) Failure to do so may result in fire, etc.

WHEN USING A DRILL TO MAKE A HOLE, TAKE PRECAUTIONS SUCH AS WEARING GOGGLES SO FRAGMENTS DO NOT GET INTO THE EYES.

Failure to do so may result in injury.

CALIBRATION REQUIRED.

If this camera system is not calibrated, its detection function will not work properly. It must be calibrated before use. Calibration is also necessary after remounting.

BE CAREFUL WHEN SETTING THE ALARM VOLUME.

Set the alarm volume to an audible level. If the alarm cannot be heard due to the volume of the car radio, etc., it might result in an accident.

BE AWARE OF DIFFERENCES IN DETECTION SENSITIVITY LEVELS.

If the sensitivity level of the object detector is changed from a high setting to a low setting, be aware of differences in detection levels. Objects that were detected under the previous level will not be detected anymore, and this might result in an accident.

BE AWARE OF THE OPERATING CONDITIONS OF THE OBJECT DETECTION FUNCTION.

The warning function only works when the gear lever is in the reverse position (R). Using the detection feature with reverse OFF may result in an accident.

DO NOT USE WITH A TOW TRUCK.

If reversed while connected to a tow truck, it will falsely detect the tow truck. Also, it cannot detect objects near the tow truck, which may result in an accident.

DO NOT JUDGE SITUATIONS BASED ONLY ON THE WARNING OF THE OBJECT DETECTION FUNCTION.

Warnings may not always be given even when vehicles or people are in danger of being hit. This is due to many factors such as vehicle speed or distance from your vehicle.

DO NOT IGNORE OBJECT DETECTION FUNCTION WARNINGS.

If an object detection warning occurs, check the surrounding area thoroughly.

⚠ CAUTION

This symbol means important instructions. Failure to heed them can result in injury or material property damage.

DO NOT ATTACH THE CAMERA AND/OR OBJECT SENSOR MOUNTING TO FLUOROCARBON RESIN FINISHED CAR BODIES OR GLASS.

Doing so could cause the strength of the camera mounting to weaken, which could cause it to fall of and cause accidents, injury, or damage to the car body.

DO NOT ATTACH THE CAMERA AND/OR OBJECT SENSOR MOUNTING TO ANY SURFACE WHERE THE ENTIRE ADHESIVE SURFACE CANNOT BE APPLIED.

Doing so could cause the strength of the camera mounting to weaken, which could cause it to fall of and cause accidents, injury, or damage to the car body.

EXCEPT FOR THE CAMERA AND/OR OBJECT SENSOR, DO NOT ATTACH ANY PARTS TO AREAS WHICH WILL GET WET, OR WHERE THERE IS A LOT OF HUMIDITY OR DUST.

Failure to do so may result in fire or damage.

USE SPECIFIED ACCESSORY PARTS AND INSTALL THEM SECURELY.

Be sure to use only the specified accessory parts. Use of other than designated parts may damage this unit internally or may not securely install the unit in place. This may cause parts to become loose resulting in hazards or product failure.

HAVE THE WIRING AND INSTALLATION DONE BY EXPERTS.

The wiring and installation of this unit requires special technical skill and experience. To ensure safety, always contact the dealer where you purchased this product to have the work done.

ARRANGE THE WIRING SO IT IS NOT CRIMPED OR PINCHED BY A SHARP METAL EDGE.

Route the cables and wiring away from moving parts (like the seat rails) or sharp or pointed edges. This will prevent crimping and damage to the wiring.

HALT USE IMMEDIATELY IF A PROBLEM APPEARS.

Failure to do so may cause personal injury or damage to the product. Return it to your authorized Alpine dealer or the nearest Alpine Service Centre for repairing.

CHECK WIRING WHEN ATTACHING.

Double-check your wiring to ensure all connections are correct and secure. Also, do not apply unnecessary force to the harness. This can result in battery failure, performance failure, connector damage, or wire breakage.

NOTICE

- **About Care of Device**
  Do not assert any excess pressure to the camera, object sensor or the mounting, as this could cause the device's direction to shift, or the device mounting to come off.
- To prevent the camera lens, object sensor, mounting and cords from changing colour or shape, or from deteriorating, wipe with a chemical-free, damp cloth.
- When washing the vehicle, do not use an automatic car washer, or high-pressure washer. Doing so could cause the camera and/or object sensor to come off, damage to the device cords, or may allow water to enter the camera and/or object sensor.
- Be sure to disconnect the cable from the (–) battery post before installing your HCE-C300R. This will reduce any chance of damage to the unit in case of a short circuit.
- Be sure to connect the colour coded leads according to the diagram. Incorrect connections may cause the unit to malfunction or damage to the vehicle's electrical system.
- When making connections to the vehicle's electrical system, be aware of the factory installed components (e.g. on-board computer). Do not tap into these leads to provide power for this unit. When connecting the HCE-C300R to the fuse box, make sure the fuse for the intended circuit of the HCE-C300R has the appropriate amperage. Failure to do so may result in damage to the unit and/or the vehicle. When in doubt, consult your Alpine dealer.
- In some cases, to attach the device, a hole must be drilled in the car body, requiring use of touch-up paint (retail product) for rust-prevention, and should be prepared beforehand.
- Route the cables and wiring away from hot or moving parts, and fix them securely to avoid heat/mechanical damage to the cable insulation, which may result in short-circuit, fire or electric shock.
- **About Calibration Settings**
  Obstacle detection performance adjustment and guidance mark settings configuration require that the camera installation information be entered. If the camera information is not entered, correct detection results may not be provided. Therefore, be sure to perform calibration. When the camera is reinstalled or when the vehicle is changed, be sure to perform readjustment.
- **About Rear Camera**
  The rear camera of this camera system is a dedicated product. Do not connect it to other cameras.
- **About Power Connection**
  Connect a reverse input cable (orange/white) to the power cable of the rear lamp. For details, consult a dealer purchased the camera, or car dealer.
  - *Connect this to a power cable of the rear lamp, but not to the positive (+) of the rear lamp signal cable.*
- **Do not use a mobile phone and wireless device near the camera.**
- Doing so may result in noise on the screen or malfunction. It is recommended to use a mobile phones or wireless devices away from the camera.
- **About Camera Installation Location**
  Before installing, make sure there is a enough space to be able to install the camera.
  If possible, install the camera in the centre of the bumper or other fitting. If the camera is installed at a distance left or right of centre, the image may differ from the real view.
- Choose the mounting locations for the control unit, camera and buzzer carefully. This location must be able to support the product weight when mounted by the supplied screws. Otherwise, damage to the vehicle may result.

Feature

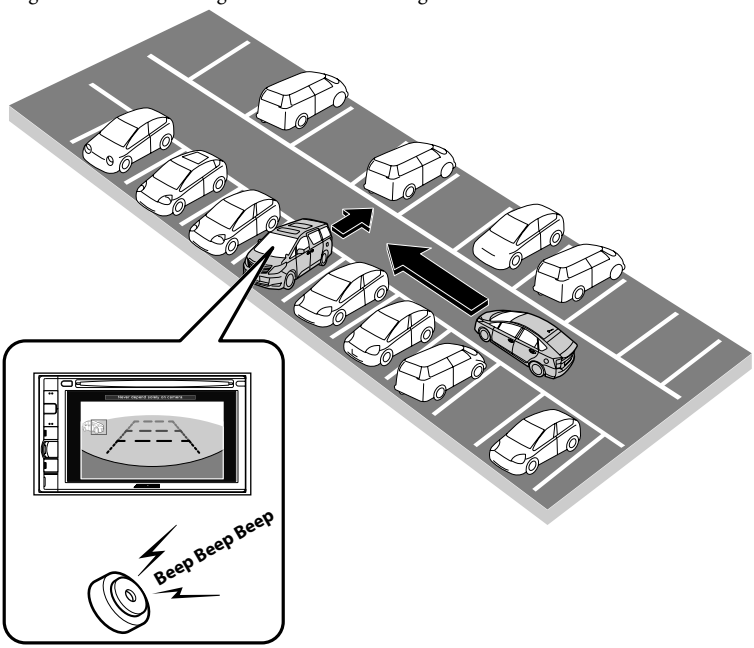
This camera system displays a live video of the area behind the vehicle. A separately installed monitor is required to view this video. When the vehicle is placed in reverse, besides video, the system also detects various objects (such as other cars or people) moving behind the vehicle. There is a visual and audible warning given for each object detected.
There are 4 different display configurations for the rear view.

About Object Detection Function

This camera system detects objects from the camera image and warns drivers with a display and an alarm.

The object detection function is useful in the following situations:

- When you reverse the car to exit a parking space at a shopping mall, this function helps to detect cars that are driving from the right or the left and gives an audible warning.
- When you reverse the car to exit your garage toward the street, this function helps to detect cars that are driving down the street and gives an audible warning.



- *Objects moving away from vehicle are not detected.*
- *You can adjust the volume of the warning beeps. Refer to "Adjusting Alarm Volume" (page 16).*
- *You can adjust the sensitivity to objects. Refer to "Adjusting Detection Sensitivity" (page 16).*

Cautions Regarding Object Detection Function

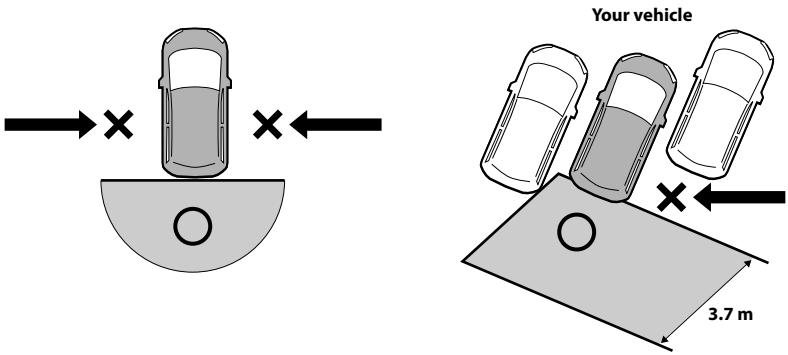
This camera system is designed to help the driver make safe driving decisions. It must not replace a thorough, visual inspection around the vehicle by the driver, before proceeding.

- *This system cannot detect every object within range of coming in contact with your vehicle.*
- *This camera distorts object size and distance from the vehicle. We are not responsible for any accidents caused by driver misjudgement or conclusions based on objects seen or unseen by this system.*

This system uses the camera's image to detect moving objects. Therefore, only objects seen by the camera are detectable.
There be times when a false warning is given with no moving object in the display. In other cases, no warning at all is given although moving vehicles are visible in the display.

In addition, a warning may not be given or may be delayed in the following cases or for the following objects.

■ Object out of the camera's scope



■ Objects approaching from directly behind

- *When both the vehicle and objects are motionless*
  - *Motionless objects are difficult to detect. Therefore, there may be cases where a warning is not given or the distance is not correct. Be sure to perform a visual check.*
- *Road paint (for example, crosswalks), tire chocks, curbstones*
- *Thin objects (for example, cones and poles)*
- *Low objects (for example, infants, children and small bicycles/tricycles)*
- *Large objects (for example, concrete block walls and guardrails)*
- *Objects not within 3.7 m behind the vehicle*
- *Objects approaching from a slope*

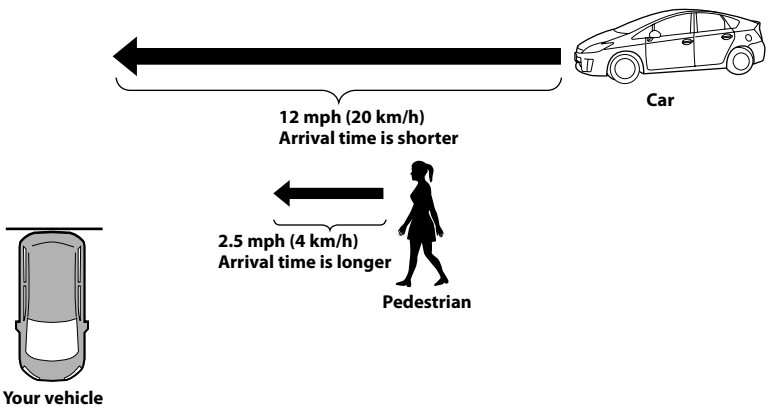
- *If multiple pedestrians crossing. If multiple pedestrians continuously approaching.*
- *When the object moves at the same speed as the vehicle*
- *Motionless objects when the vehicle moves very slowly*
- *Object moving at an extremely low speed*
- *When objects disappear from the camera's scope because of exhaust gases, rain, fog, snow, or mud*
- *False detection because of exhaust gases, rain, snow, or road surface reflections*
- *When the vehicle moves at speeds equal to or more than 5 mph (5 km/h)*
- *When the object moves at speeds equal to or more than 25 mph (40 km/h)*
- *When the detection range becomes narrower because the camera's scope is interrupted by the vehicle's body*
- *When tires are changed or the vehicle is loaded with heavy objects after calibration*
- *A particularly dark location at night*
- *A light flashing near the vehicle or its own hazard lamps flashing.*
- *When light hits the camera directly (If a license plate lamp has been customized to be brighter than normal, etc.)*
- *If the vehicle is tilted*
- *Reflection of light on the road surface while driving the vehicle*
- *Moving object that starts moving near the vehicle*
- *If the vehicle shadow shows up in the camera image*
- *If the headlights of another car reflect on the body of the vehicle to the side*

About Selection of Warning Objects

If multiple objects are detected, a warning is given for the most critical object in both the right and left images. An alarm sounds for the nearest object on either the right or left side.

The warning objects are selected according to the "arrival time" to the vehicle. Therefore, objects at higher speeds are recognized as high priority from a longer distance. Even when a moving object at lower speeds (for example, pedestrians) is closer to the vehicle, another moving object with a shorter arrival time (for example, a car) is preferentially displayed if such an object is detected.

For example: There is a pedestrian moving towards your vehicle at 2.5 mph (4 km/h) and a car from your vehicle approaching at 12 mph (20 km/h). The car will reach your vehicle earlier. In this case, a warning is given for the car.



Display of Detected Object

The display when an object is detected differs depending on image configurations.

- *When there are lots of objects present, such as in a crowd of people, the outer frame light will blink as a warning. Individual objects will not be detected.*
- *Because this camera system detects objects based on a Panorama View image, warnings can occur even if an object does not show on the Ground View / Rear View screen.*

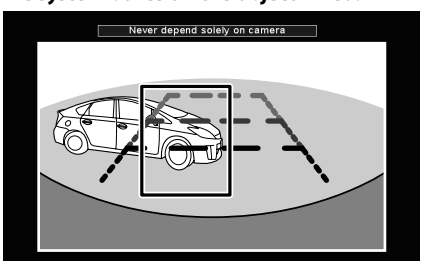
■ Panorama View Display Indications

A small box appears on an object that enters the camera's view. The box follows the object moving through the display.

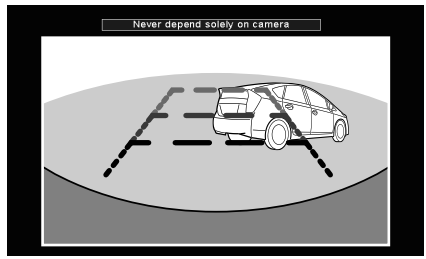
- *The box represents the objects approximate position relative to your vehicle. There may be times when the box does not appear or does not follow the object accurately.*

When an object is detected, the screen is enclosed by a red frame (first time only). An alarm also starts to sound.

The system boxes off the object in red.



The warning ends when the object comes directly behind the vehicle. No warning also occurs when the object moves away from the vehicle.

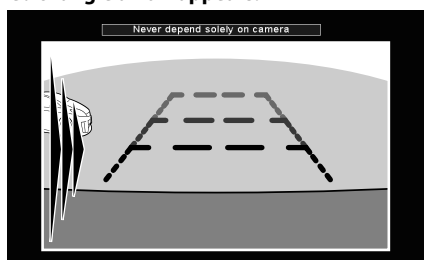


■ Rear View Display Indications

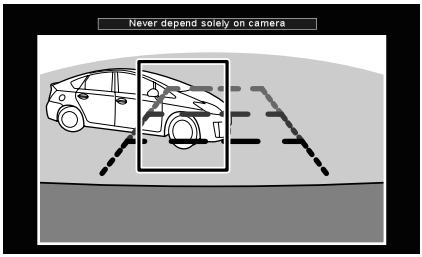
A triangle mark appears on the leftmost or rightmost side of the screen, indicating that an object is approaching from a side. After the object appears on the screen, a small box appears at the approximate location.

When an object is detected, the screen is enclosed by a red frame (first time only). An alarm also starts to sound.

If the object comes into the warning area, a red triangle arrow appears.



When the object comes into the screen, the system boxes off the obstacle in red.



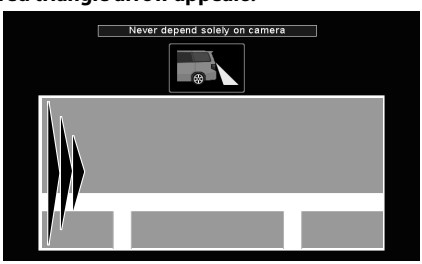
The warning ends when the object comes directly behind the vehicle. No warning also occurs when the object moves away from the vehicle.

■ Ground View Display Indications

A triangle mark appears on the leftmost or rightmost side of the screen, indicating that an object is approaching from a side.

When an object is detected, the screen is enclosed by a red frame (first time only). An alarm also starts to sound.

If the object comes into the warning area, a red triangle arrow appears.



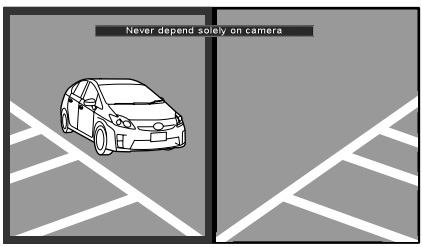
The warning ends when the object comes directly behind the vehicle. No warning also occurs when the object moves away from the vehicle.

- *The Ground View displays only a small area. Even if no warning occurs, make sure to check the surrounding area thoroughly.*

■ Corner View Display Indications

The direction from which a detected object is approaching is indicated on the left or right side of the screen.

The left or right side screen frame (whichever side the object is detected) blinks red.



The warning ends when the object comes directly behind the vehicle. No warning also occurs when the object moves away from the vehicle.

Warning Icon when No Object is Detected

The system detects an object only when the gear lever is in the reverse position (R).

- *If a rear camera image is displayed without placing the gear lever in the reverse position (when you call a rear camera image from the menu screen for example), object detection is not active.*

When object detection is not active, an icon appears at the upper left of the screen.

Warning icon

Moving object verification icon

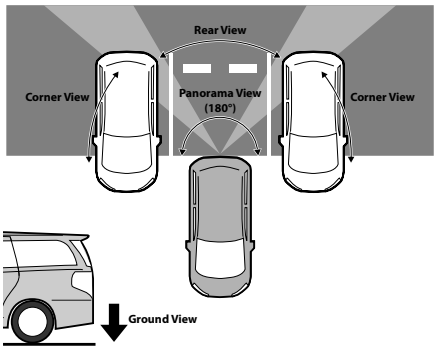
This icon displays when the system is determining if an object nearby the vehicle is moving or stationary. Warnings are delayed slightly while this icon is being displayed.

- *The moving object verification icon may be displayed even if vehicle speed increases.*

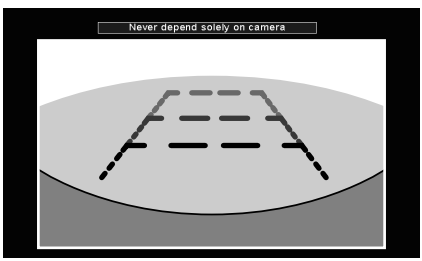
Camera Image

With HCE-C300R, you can select and switch image configurations.
The guidelines display varies with the image configuration.
For details on how to switch image configurations, refer to “Camera Operation” (page 15)

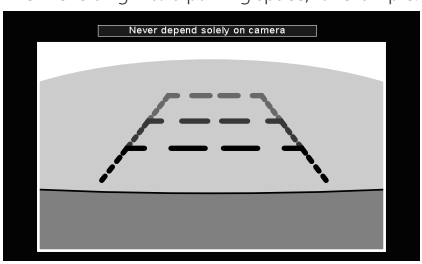
- *The guidelines shown here are for illustrative purposes only. The guidelines in the actual image will be different.*



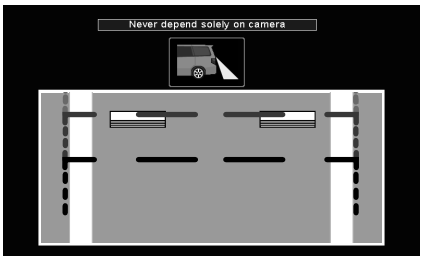
Panorama View:
Displays a general perspective of what is behind the car. Use this when you want to view a wider than normal area behind the car.



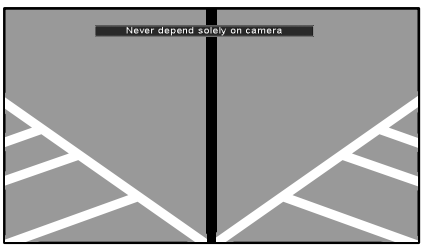
Rear View:
Displays what is directly behind the car. Use this when reversing into a parking space, for example.



Ground View:
Displays an image down to the lower section of the car. Use this to determine the car’s position in relation to the curb, etc.



Corner View:
Displays a divided image left and right of centre. Use this mainly when checking the left and right directional view.

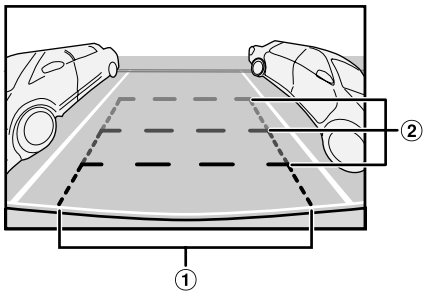


- *No guidelines appear in Corner View.*
- *The rearview camera image is reversed to have the same perspective as the rearview mirror. However, due to the camera’s fisheye lens, there is a distortion of the actual distance as it appears in the display.*
- *Images may not be clearly displayed in the following conditions. This is normal.*
  - *In the dark (nighttime, etc.)*
  - *The temperature near the lens is high or low.*
  - *The camera has water droplets on it or the humidity is high (rainy day, etc.).*
  - *Foreign substances (dirt, etc.) are on or around the camera.*
  - *Sun light or the light of a headlamp directly enters the camera lens.*
- *The guidelines in the display may not always correspond to actual distances from objects being viewed. Factors such as road surface, number of passengers, load weight, suspension adjustments, etc. can affect the accuracy of the display. Always use visual inspection to verify safe driving conditions of your surroundings.*

About the rear camera guide

■ Indication mark meaning

When you put the car in reverse gear, the monitor switches to the rear camera view. Guidelines appear to help in determining distances to surrounding objects (vehicles, walls, etc.).



① **Car width extension marks (red, yellow and green in order of proximity)**
The marks are extensions of the vehicles width. They provide guidance when backing into a parking space.

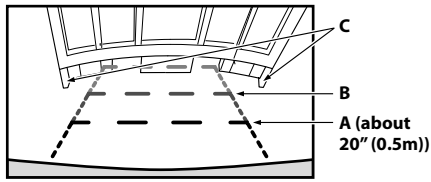
② **Distance guidelines**
The horizontal lines represent the distance from the rear of the car (from the rear end of the bumper).
- The lines do not move in synchronization with the steering wheel.
- Each line represents a distance of 0.5 m or 20" (red), 1 m or 39" (yellow) and 2 m or 79" (green) behind the vehicle.

- *Depending on the condition of the car or road surface, the range of vision may vary.*
- *The camera's range of vision has a limit. Objects near both ends of the bumper and objects under the bumper may be out of sight of the camera.*
- *The rear camera image may have a tint which is different from the actual surroundings.*
- *Depending on the car, the guidance may deviate to the right or left. This is not a malfunction.*

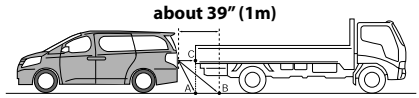
■ Distance guidelines

The distance guidelines represents the distance to the road surface, so you cannot judge the distance to an object based on these marks.

<Screen>



<Positions of A, B and C>



In the display, according to the distance guidelines, the truck seems to be parked about 39" (1 m) away (at position B). In fact, however, if you reversed to position A, you would collide with the truck.
In the display, positions A, B and C seem to be located in order of proximity. However, position A and C are the same distance, and B is further away than positions A and C.

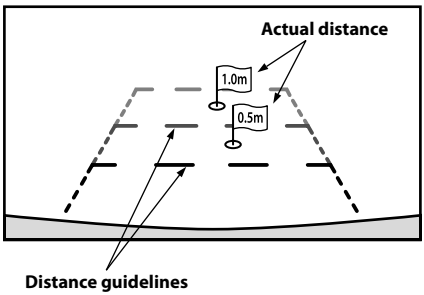
- *The car width extension mark represents the distance to the road surface, so when an object on the road surface is displayed on the screen, the mark does not represent the actual distance to the object.*
- *In the following conditions, screen visibility may be impaired. This is not a malfunction.*
  - *When it is dark (at night, etc.).*
  - *When the temperature around the camera lens is high or low.*
  - *When water drops adhere to the camera, or when the humidity is high (such as rainy weather, etc.).*
  - *When foreign bodies (such as mud, etc.) adhere to the camera or its peripheral area.*
  - *When sunlight or headlights directly strike the camera lens.*

Error between the display and actual road surface

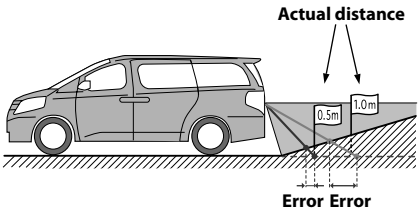
Under the following conditions, errors are produced between the display guidelines and the actual road surface. (The illustrations represent a case when the camera is installed in the standard position.)

■ When there is a steep upward slope behind the car (example)

<Screen>



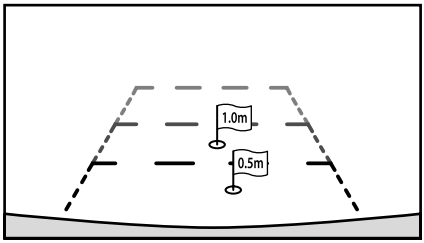
<Situation of the car>



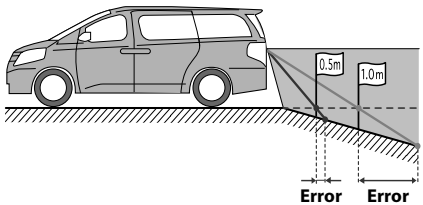
The distance guidelines represents the distance to a flat road surface. Therefore in the case of an upward slope behind the car, the distance guidelines appear further from the vehicle than their actual position. For example, if there is an object on the upward slope, it may appear further away than its actual position.
Also, an error may occur between the guidance and the actual path of the car on the road surface.

■ When there is a steep downward slope behind the car (example)

<Screen>



<Situation of the car>



In the case of a downward slope behind the car, the distance guidelines will appear further away than the actual distance.
If there is an object on the downward slope, it may appear closer than its actual position.
Also, an error may occur between the guidance and the actual path of the car on the road surface.

Warning Message Displays

This camera system displays warning messages in the upper part of the screen.

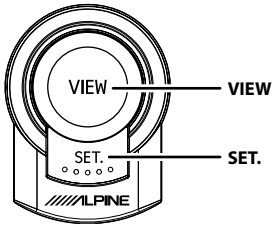
- *If the connected navigation/monitor also displays a warning message, its message will appear first.*

About Calibration

In order to effectively identify approaching objects, it is necessary to configure the guidance and install data. This data is entered during the Calibration mode and ensures the most consistent detection results.
For details on how to configure the calibration settings, refer to “Calibration” (page 26).

- *A message appears on the screen if the system has not been calibrated.*

Camera Operation



Operation is carried out by pressing the switch, or shifting the gear lever.

The following settings may be required depending on the connected navigation/monitor.

- **Rear camera connection: ON setting**
  Setting to ON is required to display the camera image on the navigation/monitor.
- **Camera guidelines display: OFF setting**
  This camera system has its own, calibrated guidelines. It is not necessary to display the guidelines found in the navigation/monitor system being used.
- *Refer also to the owner's manual of the product to connect.*

Turning the Rear Camera On and Off

Displaying the rear image by shifting the gear lever

1 **Shift the gear lever to the reverse position (backing up).**

The video image behind the car and the audible warnings depends upon the gear shift position.

2 **If you shift the gear lever to a position other than reverse (backing up), the monitor returns to the previous screen.**

- *Refer also to the Owner's Manual of the connected monitor/navigation system.*
- *Be sure to also check behind and around the car visually. Use the camera image to assist in showing conditions behind and around the car.*
- *Depending on where the unit is installed, actual conditions may differ from the displayed image.*

Displaying the rear image through operation from connected products

■ Operation from IVA-D511 series

1 **Press SOURCE/⏻ on the unit.**

The SOURCE selection screen is displayed.

2 **Touch [Camera].**

The Camera mode is activated and the rear view video is displayed.

3 **Touch [Guide Off].**

4 **Touch [⮌] to access to Visual selection screen, and then touch [Normal] to return to previous main screen.**

■ Operation from IVA-W520 series

1 **Press VISUAL on the unit.**

The VISUAL selection screen is displayed.

2 **Touch [CAMERA].**

The Camera mode is activated and the rear view video is displayed.

3 **Touch [ESC].**

4 **Touch [VISUAL] to access to Visual selection screen, and then touch [NORMAL] to return to previous main screen.**

■ Operation from iXA-W404 series

1 **Press ⊖ (CAMERA).**

The Camera mode is activated and the rear view video is displayed.

Pressing again will return to Audio/Visual mode.

■ Operation from iXA-W407BT series

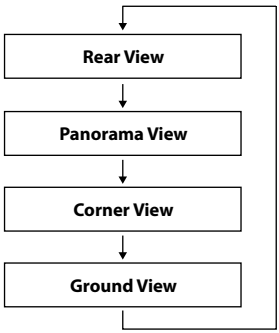
1 **Press ⏻ SOURCE to activate mode switching screen.**

2 **Slide the display horizontally with your finger to select Camera mode.**

Changing the Rear Image Configuration

1 Press VIEW.

The image configuration changes every time VIEW is pressed.



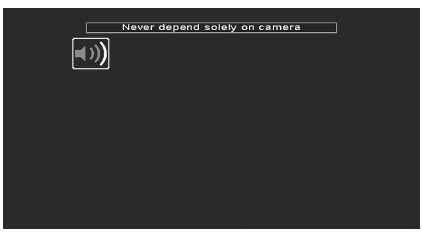
Adjusting Alarm Volume

The audible warning has 3 selectable volume levels. The default is the "Middle" setting.

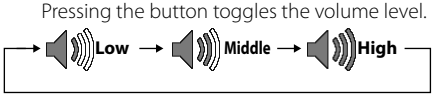
1 Press and hold SET. for at least 1 second.

The volume adjustment screen appears.

2 Press SET. to switch to a desired volume level.



Pressing the button toggles the volume level.



3 Press and hold SET. for at least 1 second.

The sensitivity adjustment screen appears.

4 To return to the normal mode, press and hold SET. for at least 1 second again.

- *The buzzer volume can be altered accidentally. Use with the appropriate volume level.*

Adjusting Detection Sensitivity

Object detection has 2 selectable sensitivity levels. The default is "High."

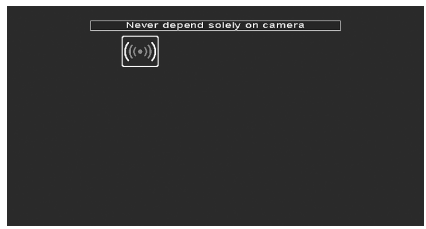
1 Press and hold SET. for at least 1 second.

The volume adjustment screen appears.

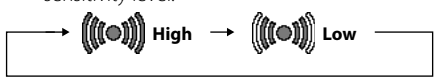
2 Press and hold SET. for at least 1 second again.

The sensitivity adjustment screen appears.

3 Press SET. to switch to a desired detection sensitivity level.



Pressing the button toggles the detection sensitivity level.



Low: Detects mainly moving objects. Almost no motionless objects are detected.

High: Detects moving objects and motionless objects.

4 To return to the normal mode, press and hold SET. for at least 1 second.

- *For details on the detection function, refer to "Cautions Regarding Object Detection Function" (page 6).*

Installation and Connections

- Be sure to disconnect the cable from the (–) battery post before installing your HCE-C300R. This will reduce any chance of damage to the unit in case of a short circuit.
- Be sure to connect the colour coded leads according to the diagram. Incorrect connections may cause the unit to malfunction or damage to the vehicle's electrical system.
- When making connections to the vehicle's electrical system, be aware of the factory installed components (e.g. on-board computer). Do not tap into these leads to provide power for this unit. When connecting the HCE-C300R to the fuse box, make sure the fuse for the intended circuit of the HCE-C300R has the appropriate amperage. Failure to do so may result in damage to the unit and/or the vehicle. When in doubt, consult your Alpine dealer.
- Route the cables and wiring away from hot or moving parts, and fix them securely to avoid heat/mechanical damage to the cable insulation, which may result in short-circuit, fire or electric shock.
- When fixing the control unit, camera, and alarm to the vehicle with screws, attaching to weak spots may damage vehicle parts.
- If the camera is not mounted securely, shifting positions will cause deterioration of detection performance.
- The cable may break due to stress caused when opening and closing the door/trunk of the vehicle.
- If the control unit becomes wet, the electrical circuitry may short out.
- Attaching with double stick tape may leave a mark on the vehicle interior.
- This camera system is meant to be used as a rear camera. It cannot be used as a front or side camera.
- This camera system cannot be used as a corner sensor.
- The camera is designed specifically for use with this system. The system cannot be used with a different camera.
- This product cannot be installed in or used with anything other than a car (in other words, it cannot be used with motorcycles, mobility vehicles, or electric wheelchairs or as a household security camera, etc.).

Installation of the Rearview Camera System

Installing the Rearview camera (page 18)

↓

Installing the buzzer and operation switch (page 20)

↓

Checking the installation location of the control unit (page 21)

↓

Connect the device (page 22)

↓

Perform calibration (page 26)

↓

Fixing the control unit

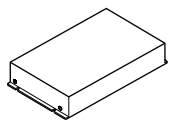
Mounting the Rearview Camera

1. Preparation

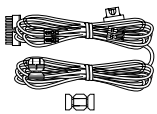
1 Check accessory parts.

① Rearview camera (50 cm)

② Control unit

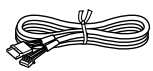


③ Power cable



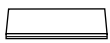
(Solderless connector)

④ Monitor connector extension cable (3 m)



⑤ Camera extension cable (8m)

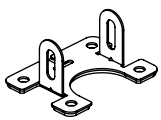
⑥ Velcro fastener (Control unit)



⑦ Self-Tapping screw (Control unit) (M4 × 8)

X4

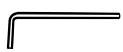
⑧ Mounting (Base for attaching the camera)



⑨ Angle adjustment screw (Base for attaching the camera) (M3 × 6)

X2

⑩ Hexagonal wrench

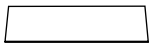


⑪ Self-Tapping screw (Base for attaching the camera) (M3 × 8)

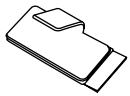
X4

⑫ Switch (3m)

⑬ Switch adhesive sheet

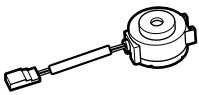


⑭ Cord clamp (Switch)

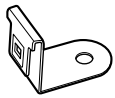


X3

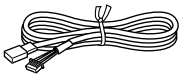
⑮ Buzzer



⑯ Mounting (Buzzer)



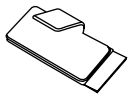
⑰ Buzzer extension cable (3m)



⑱ Self-Tapping screw (Buzzer) (M6 × 10)

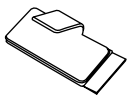
⑲ Buzzer adhesive sheet

⑳ Cord clamp (Buzzer)



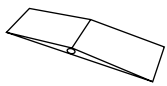
X3

㉑ Cord clamp (Camera extension cable)

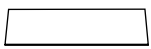


X5

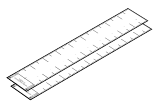
㉒ Waterproofing pad



㉓ Waterproofing pad adhesive sheet

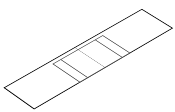


㉔ Calibration sheet (2039 × 100 mm)



X2

㉕ Calibration sheet (1000 × 200 mm)



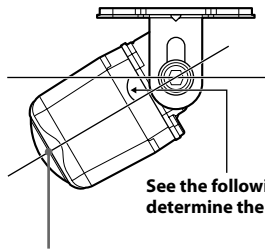
2. Installing the Rearview camera

1 Determine a mounting location for the camera.

When choosing the location, make sure that the camera and bracket won't come in contact with any part of the vehicle. Check the contact points after making the angle adjustments to the camera.

The location should be flat to provide the self-adhesive on the base to make good surface contact. Also, ensure access to both of the angle-adjustment screws for proper tightening using the supplied hex wrench.

■ Recommended installation location



<Attachment angles>

Camera height		Angle (degrees) (from horizontal plane)
inch	mm	
51.2	1300	40 - 59
47.2	1200	38 - 57
43.3	1100	35 - 55
39.4	1000	33 - 52
35.4	900	30 - 49
31.5	800	27 - 46
27.6	700	24 - 42
23.6	600	21 - 38
19.7	500	18 - 33
17.7	450	16 - 30

- *If the unit is not installed within the designated angle, calibration cannot be executed correctly.*

■ Camera installation height

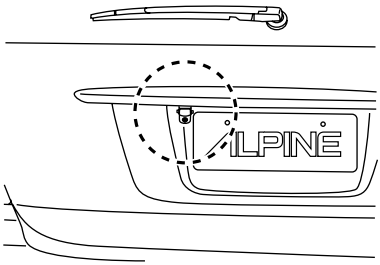
Lowest: 430 mm (16.9")
Highest: 1300 mm (51.2")

■ Largest left and right offset

400 mm (15.7") from the centre of the vehicle both in the left and right directions

■ Depth

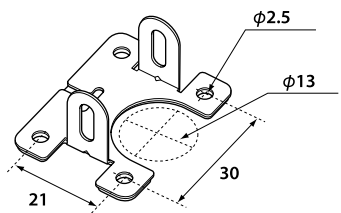
A maximum of 300 mm (11.8") from the tip of the rear bumper



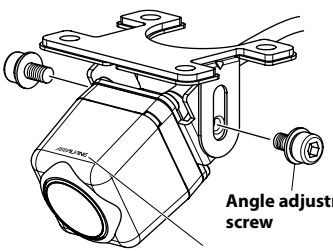
- *Install the camera as outward as possible to ensure the detection range of 180°.*
- *Provide enough clearance for proper trunk and door closure without making contact with the camera. Also, ensure that the camera cable is not being pinched or damaged.*
- *Attach the camera in a position where it does not touch the license plate.*
- *Make sure there are no objects protruding between the camera and bumper (wipers, rear-side racks, etc.).*
- *Do not install the camera near the reverse lamp.*
- *If any part of the vehicle body blocks the camera coverage area, detection of that area will not be possible.*

2 Installing the camera and the camera mounting bracket to the car.

■ Making holes for the camera cable



■ Attaching the Camera



(1) Drill a 13 mm (1/2") hole at the mounting location for the camera cable. Drill 2.5 mm (3/32") holes for mounting the bracket. Apply touch-up paint as necessary.

(2) Make sure the mounting surface is clean of debris, dirt, etc.

(3) Attach the camera to the mounting bracket ⑧ with the supplied adjustment screws ⑨.

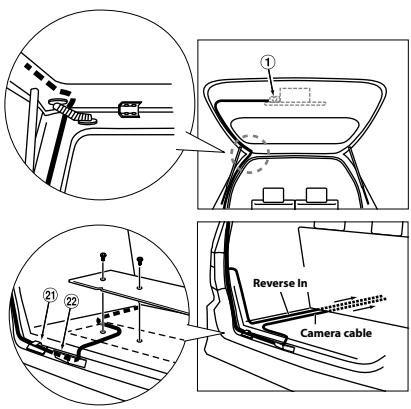
(4) Make sure the camera is facing directly behind the vehicle. It's horizontal viewing angle should be at 90° to the rear bumper. Adjust its vertical viewing angle to about 45° to the ground behind the vehicle.

(5) Pull the camera cable inside the car through the 13 mm (1/2") hole made in step (1).

(6) Peel off the protective sheet covering the adhesive strip on the bracket ⑧. Attach the bracket to the surface just cleaned.

- *If mounting to plastic, use a self-tapping screw to attach the camera bracket ⑪.*

3 Secure the camera cable. Attach the waterproof pad ㉒ with the waterproof pad adhesive sheet ㉓, and secure any slack cable around the waterproof pad ㉒ using the cord clamp ㉑.



- *Ensure the cable does not get caught in the trunk, rear door(s) or any hinges.*
- *The cable should go on the outside of car hinges and harness covers.*
- *After completing wiring, open and close the trunk and the rear doors several times to confirm the cable is not getting caught or rubbing anywhere.*

3. Installing the Buzzer

1 Attach the buzzer ⑮ with the supplied double-faced adhesive tape ⑲ or screw ⑱.

- *Before attaching the buzzer, wipe off any dust, oil, etc., on the attaching surface with a suitable cleaning cloth (sold separately).*
- *Attach the buzzer in a location where driving is not hindered.*
- *Locations that are subject to high temperatures can cause warping. Do not install in areas that receive direct sunlight, such as the dashboard.*
- *This is not a water resistant device. Do not get the unit wet. Also, install so that the cable feed opening is facing downwards to avoid water drops on the cable falling into the alarm unit.*
- *If the alarm hole is closed off, sound output may become unstable. Do not place anything within 10 mm of the alarm hole.*

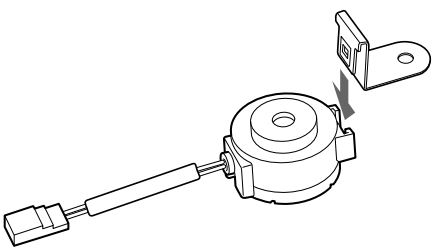
■ **Attaching with the double-face adhesive tape**

(1) Peel off the protective sheet on one side, and apply it to the back of the buzzer.

(2) Peel off the protective sheet on the other side and apply to the desired location in the car (under a seat, etc.).
If necessary, secure the cable with the supplied cord clamp ⑳.

■ **Attaching with the screws**

(1) Assemble the buzzer ⑮ and its mounting bracket ⑯.



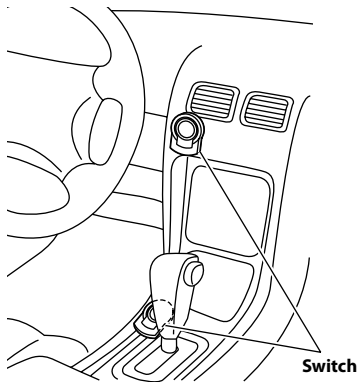
(2) Install it in the desired location in the car (under the seat, etc.) with the supplied self-tapping screw ⑱.
If necessary, secure the cable with the supplied cord clamp ⑳.

4. Installing the Switch

1 Attach the switch ⑫ according to the following illustration.

Attach the supplied switch adhesive sheet ⑬. Peel off the protective sheet, and apply it to the back of the switch, then peel off the other protective sheet and install in the desired location. If necessary, secure the cable with the supplied cord clamps ⑭.

- *Before attaching the switch, wipe off any dust, oil, etc., on the attaching surface with a suitable cleaning cloth (sold separately).*
- *Attach the switch in a location where driving is not hindered.*



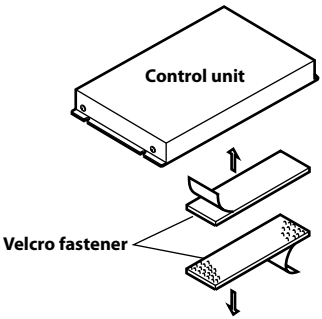
5. Installing the Control Unit

1 Attach the control unit ② with the Velcro fastener ⑥ or self-tapping screw ⑦.

- *It is recommended to install the control unit on the rear of the instrument panel, or under a seat.*

■ **Attaching with Velcro fastener**

(1) Attach the Velcro fastener (hard side) ⑥ to the bottom of the control unit ②.



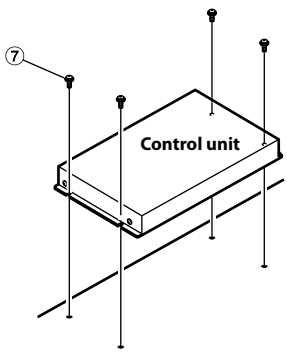
- *Attach the Velcro fastener in an area on the bottom of the unit undersurface where the label is not attached.*

(2) Attach the Velcro fastener (soft side) ⑥ to the floor, and secure the control unit ②.

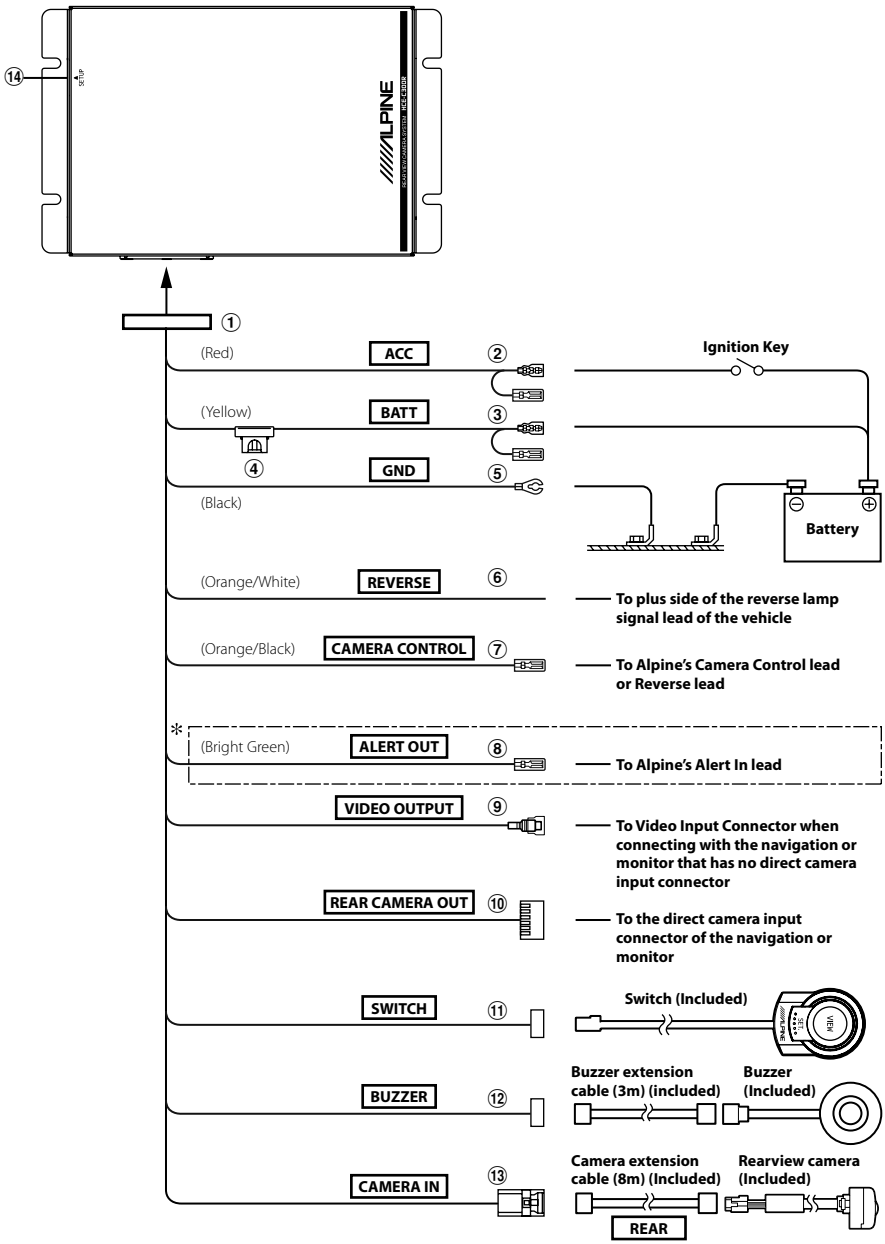
- *When attaching the Velcro fastener (hard side) ⑥ to the floor carpet, do so without the Velcro fastener (soft side) ⑥ attached.*

■ **Attaching with the self-tapping screw**

(1) Attaching the control unit with the self-tapping screw ⑦ in a flat location.



Connections



* *Currently not used.*

① **Power cable**

② **Switched Power Lead (Ignition)**
Connect this lead to an open terminal on the vehicle's fuse box or another unused power source which provides (+)12V only when the ignition is turned on or in the accessory position.

③ **Battery Lead**
Connect this lead to the positive (+) post of the vehicle's battery.

④ **Fuse 7.5A**

⑤ **Ground Lead**
Connect this lead to a good chassis ground on the vehicle. Make sure the connection is made to bare metal and is securely fastened using the sheet metal screw provided.

⑥ **Reverse Input Lead**
Connect to the plus side of the car's reverse lamp that lights when the transmission is shifted into reverse (R).
Switches the video picture to the rearview camera. This is achieved by putting the car into reverse (R).

⑦ **Camera Control Lead**
Use to connect with products that do not have the camera screen display function other than the linkage with the gear lever shifted into the reverse position (R).

⑧ **Alert Out Lead***
Outputs an obstacle detection signal.
* *Currently not used.*

⑨ **Video Output Connector (Yellow)**
Connects to the Video Input Connector when connecting with the navigation or monitor that has no direct camera input connector.

⑩ **Rear Camera Output Connector**
Connects to the direct camera input connector of the navigation or monitor.

⑪ **Switch Connector**

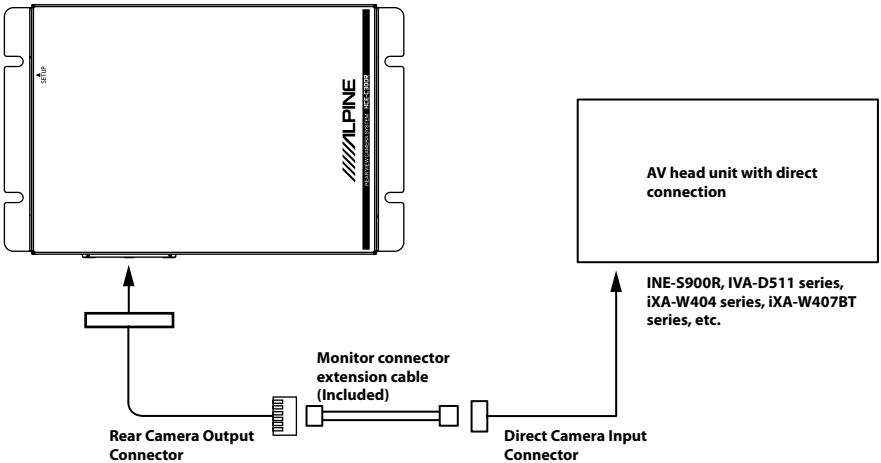
⑫ **Buzzer Connector**

⑬ **Rear Camera Input Connector**

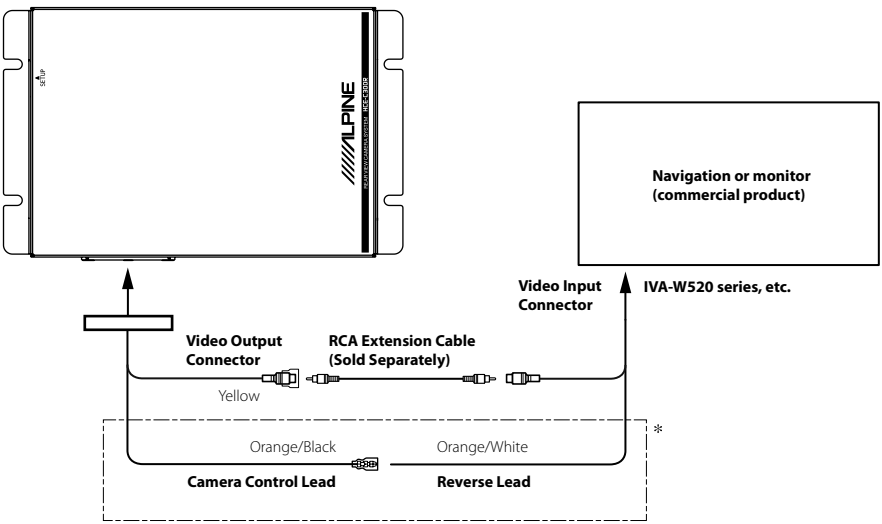
⑭ **SETUP switch (ON/OFF)**
Use this switch when calibration is performed.

System Example

Connecting a product that has the direct camera input connector



Connecting a product that has RCA video input terminals



* *Use this connection for products which only have a Reverse lead trigger for the camera display.*

- *When you route and arrange cables around the vehicle interior, do so as to avoid hot/moving parts.*
- *Connect the cameras by referring carefully to connection instructions or labels.*

Confirmation

1 Securing leads, etc.

Make sure leads are not pinched by moving parts such as the seat rail, etc. Also check for damage from sharp edges or protrusions. Refer to "2. Installing the Rearview camera." (page 18)

2 Connect the battery (-) terminal.

3 Turn on the engine key. Make sure the unit is operating correctly by referring to the Owner's Manual.

4 Make sure all factory components such as the brake lamps, etc., work correctly.

Calibration

Introduction

What is Calibration?

In order to effectively identify approaching objects, it is necessary to configure the guidance and install data. This data is entered during the Calibration mode and ensures the most consistent detection results.
Also, the warning message language and the cm/inch selection can be set in the Calibration mode.

- *Recalibration is required whenever the camera position is changed or the camera is installed in a different vehicle.*
- *If this camera system is used without being calibrated, or if the calibration sheet is not installed correctly, object detection performance will be degraded. Calibration must be performed.*
- *If the vehicle height changes after calibration, the system must be re-calibrated.*
- *Be sure the shift gear lever is in the P position and apply the hand brake before starting work.*
- *Do not operate the gear lever during calibration.*
- *Always work in a flat location.*
- *When starting the engine, provide adequate ventilation around the car.*
- *Make sure that all connections are securely made.*
- *Do not work in a poorly lit place or in direct sunlight.*

Setting Flowchart

Use the switch to perform calibration.

After connecting the camera system with the navigation/monitor, prepare the car body.

↓

Affix the calibration sheet.

↓

Set the SETUP switch of the control unit to "ON."

↓

Set ACC to "ON".

↓

Perform calibration of the camera.

↓

Set ACC to "OFF".

↓

Set the SETUP switch of the control unit to "OFF."

↓

Setting ACC to "ON" activates the system in the normal use mode.

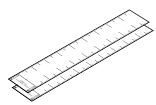
Switching between "Calibration Mode" and "Normal Use Mode"

HCE-C300R has two modes: "Normal Use Mode" and "Calibration Mode." You can use the SETUP switch on the control unit to switch the mode. If ACC is set to ON with the SETUP switch "ON", the system starts in the calibration mode, and if ACC is set to ON with the SETUP switch "OFF", the system starts in the normal use mode. The factory setting is "OFF".

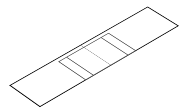
Preparation

Accessory parts

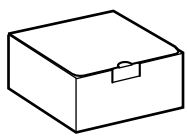
Calibration sheet ①



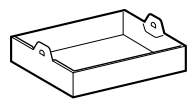
Calibration sheet ②



External box



Interior box



Necessary tools

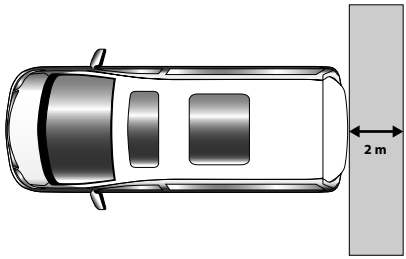
Tape measure

Adhesive tape (for positioning mark)

Pen (for positioning mark)

Necessary space for work

Keep a space of 2 m or more behind your car.



Prepare the Car Body

- Check air pressure of all the tires for any unbalance. If not in balance, apply the specified pressure to all the tires.
- Be sure the shift gear lever is in the P position and apply the hand brake.
- When working with the engine running, be sure to provide adequate ventilation.
- Make sure that no dirt (mud, ice, snow, or other foreign objects) adhere to the camera surface.
- Work on image adjustment by sitting in the driver's seat with no other passenger in the car.

- *The image of this camera system may deviate due to the number of passengers or load in the vehicle; however, this is not a fault of the system.*
- *When the camera is reinstalled or when the car is changed, be sure to perform readjustment.*
- *The detection performance may be degraded when tires are changed or the vehicle is loaded with heavy items after calibration.*

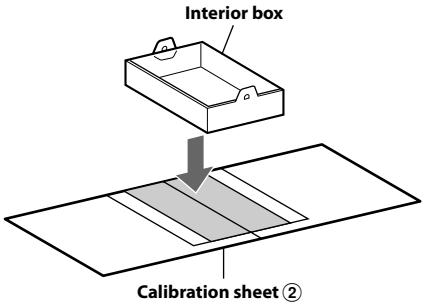
Affixing the calibration sheets

Affix the calibration sheets and measure the camera installation location.

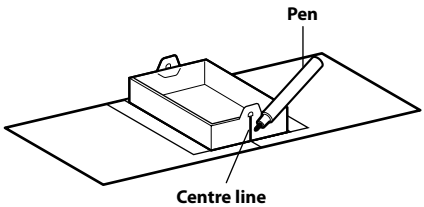
1 Using calibration sheet ②, draw a centre line with a marker or pen on the side of the interior box.

(1) Place the interior box on calibration sheet ② so that it aligns with the sheet line.

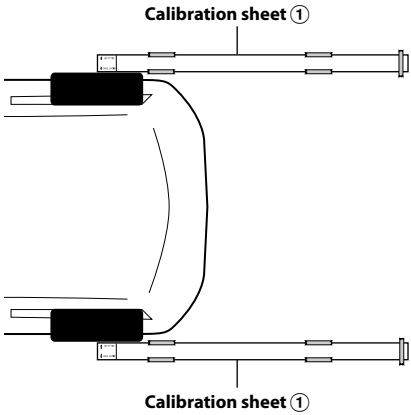
Draw a centre line on the short side of the interior box. Draw the centre line across the entire length of the side of the box.



(2) Line up with the centre line on calibration sheet ② and draw a centre line on the interior box.

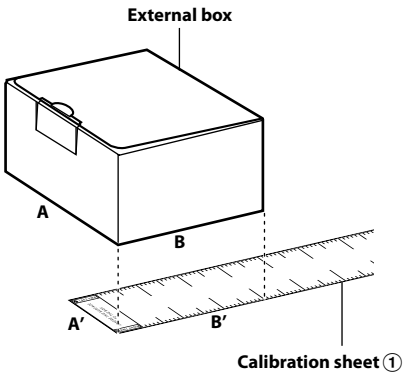


2 Affix the calibration sheets ① on the ground so they align with the vehicle width.



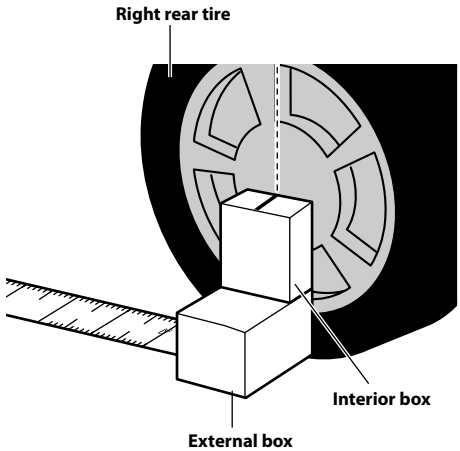
Affixing the calibration sheet for the right tire side:

(1) Align the corner of the "RIGHT TIRE" side of the calibration sheet and the corner of the bottom surface of the external box, make sure that the sheet and box line up straight, and affix with adhesive tape.



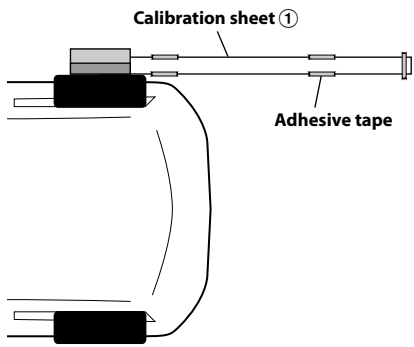
- Affix so that the A-A' and B-B' sides line up straight.
- Stabilize with adhesive tape in about 3 places so that the calibration sheet does not slip.

(2) Align the interior box on top of the external box with the affixed calibration sheet, and place it up against the right rear tire. Align the mark on the interior box with the centre of the rear tire.



Align the centre line of the interior box with the centre of the tire.

(3) Spread the calibration sheet out straight and affix it with adhesive tape so it does not move.



(4) Remove the external box from the calibration sheet.

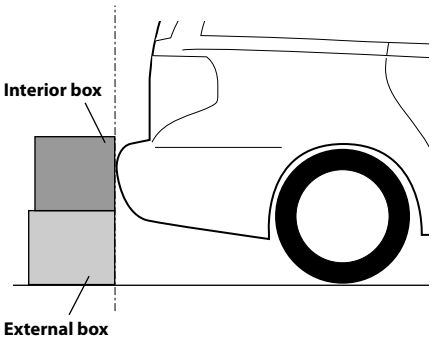
- Make sure the calibration sheet affixed to the ground does not move.
- The sheet to the side of the rear tire does not need to be affixed to the ground.

This completes the affixing of the calibration sheet on the right tire side. Affix a calibration sheet to the left tire side in the same way.

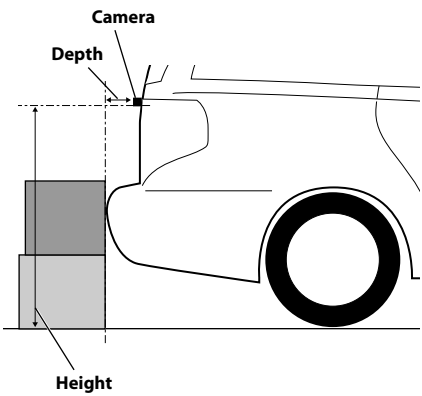
- For the left tire side, when affixing the calibration sheet to the external box, align the corner of the "LEFT TIRE" side of the calibration sheet and the corner of the bottom surface of the external box, making sure that the sheet and box line up straight, and affix with adhesive tape.
- The left and right calibration sheets must be affixed in a parallel fashion. Measure the widths between the sheets for the area directly underneath the bumper and the sheet edges, and make sure they are within ±5 cm (1.97").

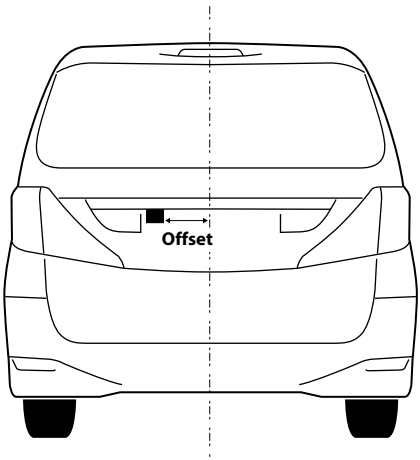
3 Measure the camera installation location (Depth, Height, Offset).

(1) Stack the external box and internal box and place them so they are up against the car in the vicinity of the centre of the rear bumper.



(2) Measure numeric values in 3 places.





Depth: Measure the length from the camera to the box.

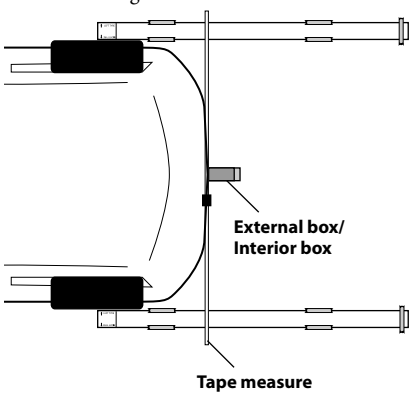
Height: Measure the height from the ground to the camera.

Offset: Measure the length from the centre of the vehicle to the camera.

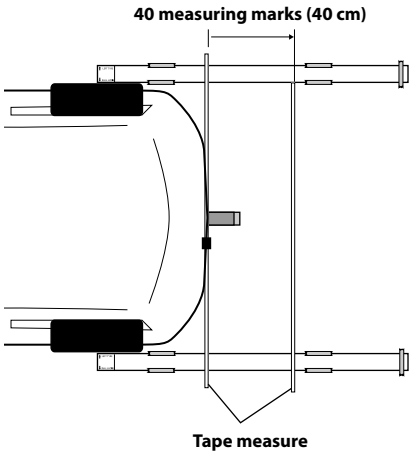
- Write the measured values down for reference.

4 Stretch the measuring tape until it reaches both the left and right calibration sheets and place it on the ground so that it aligns with the inside of the box.

- Place the measuring tape so that it touches the exact same measure mark on both the left and right calibration sheets.

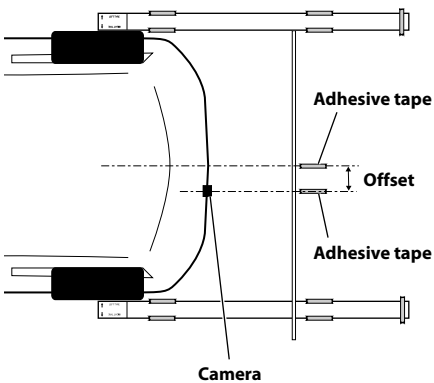


5 **Move the measuring tape 40 measuring marks back from the location in step 4.**

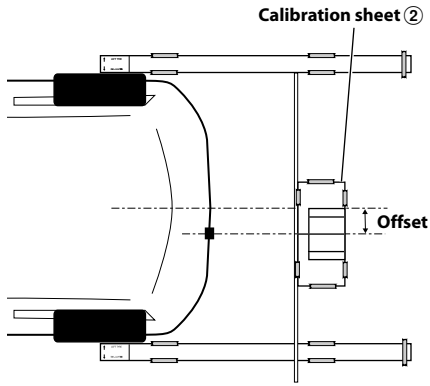


- Make sure that the measure mark values are the same for both the left and right calibration sheets.

6 **Measure the distance between the insides of the left and right calibration sheets and mark the centre spot with adhesive tape. Move from the centre to the camera side a distance equivalent to the numerical value of the camera offset measured in step 3, and mark that spot with adhesive tape.**



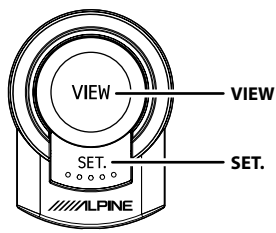
7 **Place calibration sheet ② on the ground so that the sheet centre line aligns with the offset spot marked in step 6, and affix calibration sheet ② to the ground with adhesive tape so it is parallel with the measuring tape.**



- Make sure that the measuring tape lines up with the measure mark values, and are the same for both the left and right calibration sheets.

About Operation in Calibration Mode

1 **Press VIEW, select the item, and press SET. to execute.**



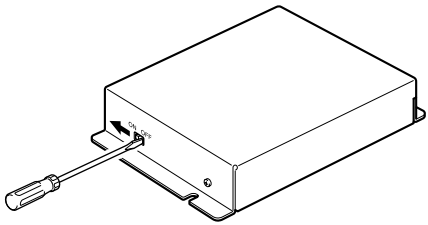
VIEW : Selects a desired item. (The switch that is selected is enclosed by a yellow frame.)

SET. : Executes the selection.

Performing Calibration

- *Measure and input calibration data carefully. Errors can result in image distortion, guideline misplacement, and degradation of detection performance.*
- *If the ignition key is turned off during calibration, the settings will not be saved.*

1 **Set the SETUP switch of the control unit to "ON."**

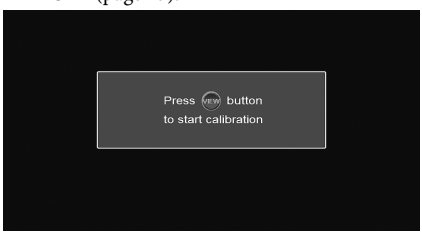


2 **Set the ignition key to ACC ON.**

The camera system starts in calibration mode.

3 **Display the camera screen and press VIEW.**

- Refer to "Turning the Rear Camera On and Off" (page 15).



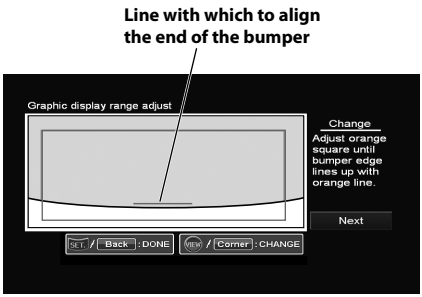
The Top menu screen appears.

4 **Press VIEW, select "Change" for (cm) or (Inch), and press SET. to execute.**

The Graphic display range adjust screen appears.

- Execute calibration at the selected unit.
- Select "Change" under "Language" in the Top menu screen to change the display text language. For operation instructions, refer to the step 19.

5 **Press SET. to adjust the display range.**



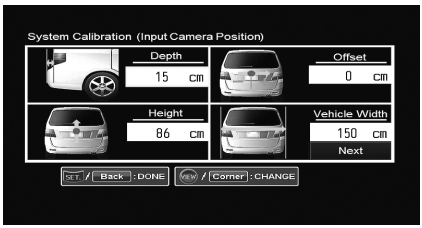
Adjust so that the bumper appears within the orange adjustment frame. The bumper should take up about 10% of the area inside the frame.

- If the bumper takes up too much space or almost does not show at all, adjust the installation angle of the camera to fit within the angle range on page 18.
- If the adjustment frame is set to the bottommost position, the area outside the camera range (black circle edge) might be displayed in the bottom portion of the screen. If the area outside the camera range is distracting, set the adjustment frame one level upwards.

6 **Press VIEW, select "Next," and press SET. to execute.**

The Input Camera Position screen appears.

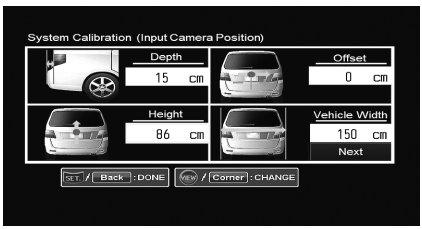
7 Press SET. repeatedly to change the value of "Depth."



You can specify the depth in 0.5 inch/1 cm increments by pressing SET..

Setting value: 0 to 11.5 inches/0 to 30 cm

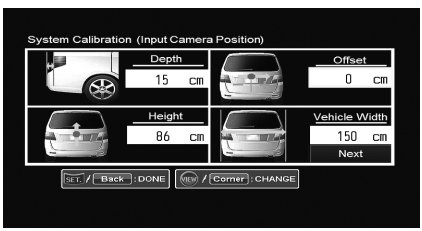
8 Press VIEW, select "Height," and press SET. repeatedly to change the value.



You can specify the height from the ground to the camera in 0.5 inch/1 cm increments by pressing SET..

Setting value: 17 to 51 inches/
43 to 130 cm

9 Press VIEW, select "Offset," and press SET. repeatedly to change the value.

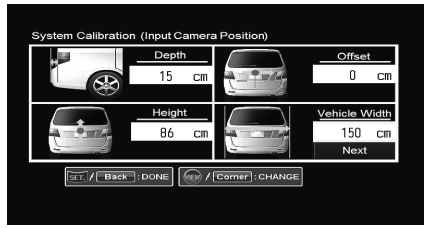


You can specify the offset value in 0.5 inch/1 cm increments by pressing SET..

Setting value: -15.5 to +15.5 inches/
-40 to +40 cm

- The right side of the vehicle is plus and the left side is minus.

10 Press VIEW, select "Vehicle Width," and press SET. repeatedly to change the value.



You can specify the car width in 2 inchs/5 cm increments by pressing SET..

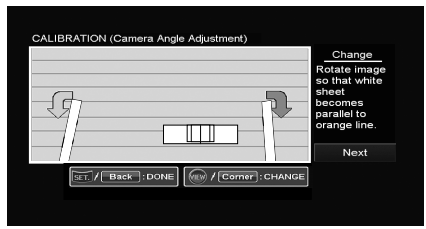
Setting value: 56 to 86 inches/
140 to 220 cm

- Do not specify a value less than the actual car width.
- If there is no setting that matches the vehicle width, set the nearest value larger than the actual vehicle width.

11 Press VIEW, select "Next," and press SET. to execute.

The Camera Angle Adjustment screen appears.

12 Press SET. repeatedly until the calibration sheet is parallel to the orange lines.



You can specify the angle in 0.5° increments by pressing SET..

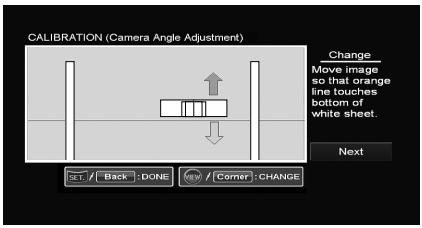
Pressing VIEW repeatedly selects the left arrow, right arrow, "Next" switch, left arrow, etc.

- A slight lag time exists between pressing the switch and the screen display change.

13 Press VIEW, select "Next," and press SET. to execute.

The Camera Angle Adjustment screen appears.

14 Press SET. repeatedly and adjust so that the bottom part of the calibration sheet lines up with the line at the bottom of the screen.

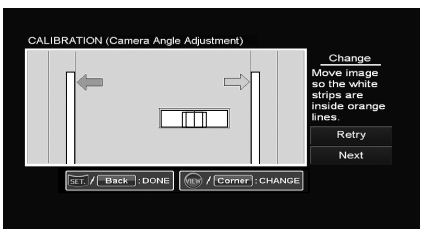


Pressing VIEW repeatedly selects the up arrow, down arrow, "Next" switch, up arrow, etc.

15 Press VIEW, select "Next," and press SET. to execute.

The Camera Angle Adjustment screen appears.

16 Press SET. repeatedly and adjust so that the calibration sheet fits inside the screen frame.



Pressing VIEW repeatedly selects the left arrow, right arrow, "Retry" switch, "Next" switch, left arrow, etc.

17 If the 3 calibration sheets fit inside the frames go to step 18.

If the calibration sheet does not fit insides the frame, Press VIEW, select "Retry" and press SET. to execute.

The screen will return to the screen shown in Step 12 to start the calibration process again.

- If the calibration sheets ① and ② do not fit inside the frame. Please refer to page 27 for calibration sheet setup procedure.

18 Press VIEW, select "Next," and press SET. to execute.

The Language selection screen will appear.

- Language selection is also possible by selecting "Change" on the "Options" – "Language" of step 4 (page 31).

19 Select "ON/OFF" for the warning message display. Press SET. repeatedly to select either "Disp/ON" or "Disp/OFF."

Disp/ON: Warning messages will appear.

Disp/OFF: Warning messages will not appear.

- The warning message of the connected navigation/monitor will appear first. If the warning message of this camera system overlaps the warning message of another connected device, set to "Disp/OFF:"

20 Press VIEW.

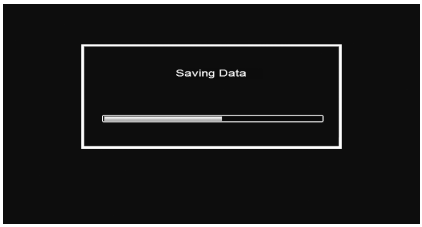
The Language selection mode is activated.

21 Press SET. repeatedly to select the preferred language.

The default setting is English.

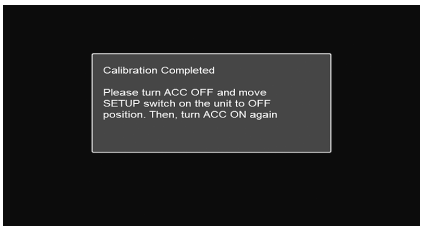
22 Press VIEW, select "Done," and press SET. to execute.

The specified values are saved.



• Saving takes approximately 4 minutes.

After saving, the message screen automatically appears.



Caution

- *If the ignition key is set to ACC OFF before the screen notifying that saving is completed appears, the data is not saved.*

23 Set the ignition key to ACC OFF.

24 Set the SETUP switch of the control unit to "OFF."

25 Set the ignition key to ACC ON.

The camera system starts in the normal use mode.

Information

Specifications

■ Camera section

Image sensor	1/4 Type Colour CMOS Image sensor, aspect ratio 4 : 3
Effective Number of Pixels	640 (horizontal) × 480 (vertical) approximately 0.3 Megapixels
Lens Section	Focal length f = 0.8 mm, brightness F = 2.6
Angle of Field	Horizontal: 190 °, Vertical: 155 ° (Control unit output: 180 °)
Automatic Image Adjusting Function	Automatic metering adjustment, Automatic white balance adjustment
Synchro-System	Internal synchronization
Resolution (Horizontal)	250 lines (centre area)
Illumination Range	2 to 100,000 lx
Operating Temperature Range	-22 to +158 °F (-30 to +70 °C)
Storage Temperature Range	-40 to +185 °F (-40 to +85 °C)
External Dimensions (W × D × H)	21 × 21 × 23.8mm (53/64″ × 53/64″ × 15/16″) (excluding cable)
Weight	30 g (including cable)

■ Control unit section

Power Requirements	14.4 V DC (11 to 16 V allowable)
Ground Type	Negative ground type
Output Image	Mirror image, CVBS (NTSC Colour signal system)
Output Drive Capacity	75 ohm (W)
Operating Temperature Range	-4 to +140 °F (-20 to +60 °C)
External Dimensions (W × D × H)	176 × 110 × 30 mm (6-15/16″ × 4-5/16″ × 1-3/16″)
Weight	450 g (including cable)

In Case of Difficulty

• The camera image does not appear. (Images other than that of the camera are normal.)

Cause	Solution
The ignition key is set to a position other than ON.	Set the ignition key to ON.
No fuse is installed, or there is a break in the connection.	Install a fuse, or replace a relevant fuse after checking the cause.
The connection is not correctly established.	Check whether the connection is correctly established while referring to this owner's manual.
The reverse signal line of the connected product is not connected.	Connect the reverse signal line while referring to the owner's manual of the connected product.
The video connection cable is not connected to the camera input of the connected product.	Connect the video connection cable to the camera input while referring to the owner's manual of the connected product.
The rear camera image does not display, and the calibration mode appears.	The control unit SETUP switch might be ON. Turn the ignition key to OFF and then set the SETUP switch to OFF. Wait for approximately 1 minute and then turn the ignition key to ON again.

• The camera image is not normal. (Images other than that of the camera are normal.)

Symptom	Cause/Solution
The display screen flickers.	If a place illuminated by a fluorescent lamp is captured, the display screen may flicker. This is not a failure.
The screen is difficult to read.	If a dark place or a partially bright light is captured, or if the temperature of the main body of the camera is high, the screen may be difficult to read. This is not a malfunction.
The camera image sways.	Check the installation status, and check screws for looseness.
The camera image is unclear.	If the camera lens is dirty, wipe the lens softly with a soft cloth moistened with water.

• Object Detection Function

Symptom	Cause/Solution
The object warning is not displayed and/or the alarm does not sound.	The reverse line is not connected. Refer to the owner's manual for the connected product and connect the reverse line.
The alarm does not sound.	The camera is set to the Alarm volume adjusting mode or Detection sensitivity adjusting mode. Return to normal mode referring to "Adjusting Alarm Volume" (page 14) or "Adjusting Detection Sensitivity" (page 15).
Detection performance is poor.	The camera lens might be dirty. If the camera lens is dirty, gently wipe it with a damp cloth.
The alarm got louder or softer.	You might be accidentally changing the alarm volume. Refer to "Adjusting Alarm Volume" (page 16) and set the volume to a suitable level.
The device detects motionless objects.	You might have accidentally set the sensitivity level to "high." Refer to "Adjusting Detection Sensitivity" (page 16) and set the sensitivity to a suitable level.

• Others

Symptom	Cause/Solution
There are noises on the radio.	If there are noises on the radio, keep the camera cables and the video cables away from the wire harness, the radio antenna, and the antenna cables of the vehicle.

If there is a serious symptom, for example, the distance guidance marks deviates significantly from the actual distance, stop using this system and contact your ALPINE dealer.